

## 4: Critical values of Chi-squared

Degrees of freedom	Significance level	
	0.05	0.01
1	3.84	6.64
2	5.99	9.21
3	7.82	11.34
4	9.49	13.28
5	11.08	15.09
6	12.59	16.81
7	14.07	18.48
8	15.51	20.09
9	16.92	21.67
10	18.31	23.21
11	19.68	24.72
12	21.03	26.22
13	22.36	27.69
14	23.68	29.14
15	25.00	30.58
16	26.30	32.00
17	27.59	33.41
18	28.87	34.80
19	30.14	36.19
20	31.57	37.57
21	32.67	38.93
22	33.92	40.29
23	35.18	41.64
24	36.43	42.98
25	37.65	44.31
26	38.88	45.64
27	40.11	46.96
28	41.34	48.28
29	42.56	49.59
30	43.77	50.89
40	55.76	63.69
50	67.51	76.15
60	79.08	88.38
70	90.53	100.43
80	101.88	112.33
90	113.15	124.12
100	124.34	135.81

To calculate degrees of freedom where there are A rows and B columns respectively, use  $DF = (A - 1) \times (B - 1)$ . If there is only one row then there are (B - 1) degrees of freedom.

Reject  $H_0$  if the calculated value of Chi-squared is greater than the critical value at the chosen significance level.

## 5: Critical values of Spearman Rank Correlation Coefficient

Degrees of freedom	Significance level	
	0.05	0.01
4	1.000	
5	0.900	1.000
6	0.829	0.943
7	0.714	0.893
8	0.643	0.833
9	0.600	0.783
10	0.564	0.745
11	0.523	0.736
12	0.497	0.703
13	0.475	0.673
14	0.457	0.646
15	0.441	0.623
16	0.425	0.601
17	0.412	0.582
18	0.399	0.564
19	0.388	0.549
20	0.377	0.534
21	0.368	0.521
22	0.359	0.508
23	0.351	0.496
24	0.343	0.485
25	0.336	0.475
26	0.329	0.465
27	0.323	0.456
28	0.317	0.448
29	0.311	0.440
30	0.305	0.432

Degrees of freedom = number of paired measurements in total sample.

Reject  $H_0$  if the calculated value exceeds the critical value at the chosen confidence limit.